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ABSTRACT

Consequences of the coming worldwide competition in courses, degree programs, and training, and what it may mean for higher education in the future are discussed. Traditionally, institutions of higher education had some security in what amounted to geographical monopolies corresponding to the physical campus location. The educational consumer is now becoming free from that constraint. This will probably mean the emergence of virtual organizations and serious survival concerns for those institutions and associated faculty that cannot adapt or compete in the new environment. The power of intelligent consumer feedback on courses, degree programs, and institutions, gathered on the Web and provided for the customer will be a major factor in the evolution of a truly free enterprise marketplace in learning. The key to the future is the incorporation of technology for group communications into regular classes and the movement of all university student services on to the networks. Contains 18 references. (Author/AEF)

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EDUCATION, COMMERCE, AND COMMUNICATIONS: THE ERA OF COMPETITION

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Abstract: Consequences of the coming world wide competition in courses, degree programs, and training and what it may mean for higher education in the future are discussed. Traditionally, institutions of higher education had some security in what amounted to geographical monopolies corresponding to the physical campus location. The consumer is now becoming free from that constraint. This will probably mean the emergence of virtual organizations and serious survival concerns for those institutions and associated faculty that cannot adapt or compete in the new environment.

Where is the wisdom we lost in knowledge?
Where is the knowledge we lost in information?
T. S. Eliot (The Rock)

INTRODUCTION

A decade ago the practice of remote education was largely limited to inexpensive asynchronous correspondence type courses using surface mail, or very expensive video broadcast systems with audio feedback. Typically remote education embodied a very narrow concept of communications between a single instructor and a single student (correspondence model) or the broadcast of material to a largely passive large audience (broadcast model). The latter was claimed to be an attempt to replicate the atmosphere of the face to face class. Both forms proved to be a sad second in quality and performance relative to the small interactive face to face class. Today, many people still consider remote education a poor second (thought necessary for some) to on campus education because of those earlier experiences.

Those of us who have worked with remote delivery of courses, using group communications and the Web, have found that remote students can do at least as well as on campus students, and in some cases better [Hiltz 1994]. Even campus based face to face classes can be a lot better when they utilize appropriate group communications technology [Turoff & Hiltz 1995]. There is enough evidence from experiments and field trials to consider the above a scientific finding [Hiltz & Wellman 1997]. In my own case, distance students are part of the same asynchronous on line conference that includes my face to face students. The only difference between the two is that remote students get video tapes of my lectures. When we first started to employ group communications in the early eighties, we were using computer conferencing for face to face to face classes, NOT distance learning [Hiltz and Turoff 1993]. While we believed it made a major improvement to regular courses, it was only distance learning that held the interest of those who had money to sponsor studies of the use of the technology in the educational process.

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What is important to realize is that it is not only technology that is important but the learning methodologies utilized to employ the technology. Asynchronous group communication allows the use of collaborative modes of education where students may work on team oriented assignments. They may communicate and work together as small project teams. It is this key difference that makes most of the quality improvements possible. Furthermore, students can see the quality of each other's work and this seems to be significantly more motivation for good work than when just the instructor sees the students work. These impacts occur for regular students as well as distance students [Turoff 1995].

The paradox of automation is that when one takes what is done manually and uses computers to imitate the same process, the loss is the opportunity to carry out the objective in new and innovative ways that can enhance the quality of what is done. This lesson keeps repeating it self in new application areas. Successful use of the technology involves Virtual Classes that are very different than the face to face class.

However, another truism in the field of information systems is that innovative use of the technology often gets derailed when it is implemented on a mass scale. We saw this in the early years of most IS innovations. What gets marketed to the masses was not always representative of the systems that demonstrated the innovation. For remote education this is even a more extreme a problem because there is a social revolution as well as a technology revolution taking place.

At the same time that the technology allows the offering of remote education it also completely eliminates the safe geographical monopolies that many institutions of higher education could count on as a core market to maintain their stability.

Any college or university can now offer their courses and degrees at a reasonable cost anywhere in the world.

We have entered the era of world wide competition among institutions of higher education. (In the long run this will also apply to public and private education at all levels and various student services, such as tutoring.)

THE ERA OF COMPETITION

For a mere $15 million (less than the cost of a single college building) one could start a virtual university serving two to four thousand students where each instructor gets $150,000 a year to work with student classes in the 25 to 50 size range. Tuition at such an institution could range from $7,500 to $15,000 a year [Turoff 1995]. Even an existing university can do this if it can ignore the current sunk costs of maintaining its physical campus when doing remote education. Even if one does not agree with the academic design presented in this earlier paper, one has to realize that the analysis means that there is little economic barrier to any institution getting into the field or for new institutions to start up.

The growing cost of higher education tuition is creating an economic umbrella under which new institutions and new programs can prosper. The economics are even more dramatic if one goes to the correspondence course model:

- One academic doing the video tapes or on line multimedia course material with video clips, voice clips and CAI type aids that can "teach" (in broadcast mode) thousands of students.
- One teaching assistant or hired grader can grade problems and exams for 100 students at a cost of about $5,000-10,000, or an AI system that can do the grading when we restrict the questions to "well structured" ones.
- Communication limited largely to email between the individual grader and the student.

While I think many of us who are academics cringe at this model of education, I am afraid that pressures of cost reduction are forcing many administrators to take this model seriously. The students enrolled in the correspondence course form of learning may never know what they are missing. For those who are working part time or full time, have family or work commitments, this form of education is a Godsend. It allows them to choose when they will participate, eliminates travel time, allows them to use late night hours, solves course conflict problems and puts the scheduling of their time entirely under their control.

There is considerable effort underway to utilize group communications and collaborative learning methodologies (See: Society for Asynchronous Learning Networks http://www.aln.org). However, I suspect the vast majority of distance offerings by universities, colleges, and corporate training operations throughout the country is still following the "correspondence course" model with a focus on email and web delivery of multimedia material.

Even in the ALN community there is a lack of perception among many institutions as to what is really taking place. At many institutions of higher learning the distance education mission was, and still is, treated as a separate education entity and in some cases not under the direct control of faculty or departments. At NJIT, on the other hand, over half of the enrollments in distance education are from regular on campus students seeking to eliminate course scheduling conflicts and be able to complete their degrees earlier [Turoff 1997].

> The normative goal of the use of the Web and group communications for educational delivery should be to completely eliminate the need for any distinction, organizationally or functionally, between distance students and on campus students.

If the same technology is applied for all courses, then the individual students may choose whether to attend lectures, view video material, and/or utilize web multimedia material. There is then no need to distinguish in any way shape or form between distance students and face to face students. Many students who attend my face to face classes go to the library to view videos when they have to travel or when they feel the need to review lectures before an exam. Many foreign students with language difficulties want to be able to hear some lectures more than once.

We can contrast this view with what a number of current programs are engaging in which is "skimming the cream." Duke University, for example, has introduced a remotely offered MBA. The on campus students normally pay tuition in the range of $40,000, but the distance student will pay over $80,000 for the same degree program. In the past the most lucrative distance programs were those where industry picked up the costs for the student and targeting industry sponsors is one of the current marketing philosophies in use.

One view of the marketplace by some educators is the largely industry market providing "just-in-time," on demand approach to electronic educational products offered by virtual universities through intermediaries called "educational brokers" [Hamalainen et al. 1996]. The concept of "just in time education" points to the lack of understanding among many educators as to the necessity to understand first what market higher education serves. Traditionally, we have been there to serve the students by providing a degree program that will allow them to change their lives and their jobs. Industry on the other hand wants education that is just enough to improve their performance on current jobs and is not interested in losing their employees. For example, many companies supporting tuition do so on a course by course basis and will not support courses not considered relevant to the current job of an employee. Subjects such as philosophy is not often considered job related! Yet I would claim that those students with a strong background in philosophy make better information system designers. When one gets into discussions with some industry representatives it is clear, for example, they want things like specific language courses and not general language theory courses that will allow students to pick up most new languages on their own.

> It is not clear that serving what industry wants is always consistent with the goal of an institution of higher education to serve the student. Who is the customer is a fundamental question!

Unfortunately students sometimes do not appreciate the value of some the things you try to teach them until long after they have completed their education. On the other hand, I have found by mixing my face to face students with the remote students that often the remote students who have been out in industry for many years are a considerable aid in letting the other students know the value of some of what they are learning.

BROKERS & MARKETEERS

Another aspect of the emerging marketplace is the "brokers" who can translate into an additional bureaucratic layer between the student and the educational process. If the prospective student were an intelligent consumer with all the necessary information to make a wise market choice, brokers would be unnecessary. Sooner or later the students and companies will learn that most of these have specific products they are marketing and they don't really serve as an unbiased broker. A counter trend is the growing number of publications reviewing and rating colleges and attempting to provide consumer information. Every year they seem to be getting a little better at this but nowhere near what is needed. The education decision for the consumer is a decision equivalent in cost to buying a new car every year. We can expect to see a "consumer report" organization on higher education that might also become the "amazon" of course providers. It would charge the consumer directly for finding the right match of a degree program or combination of courses. Such an organization would not work for any regional or other set of universities or providers.

The power of intelligent consumer feedback on courses, degree programs, and institutions, gathered on the web and provided for the consumer, will be a major factor in the evolution of a truly free enterprise marketplace in learning [Turoff 1985, 1995]. Just as Amazon.com is doing with books, some future retailer will market consumer evaluated educational and learning options.

ACCREDITATION

This brings us to another key element in the puzzle of trying to understand the future of this area: accreditation. Right now only degree programs are accredited. Consumers at the undergraduate level seem to have little understanding today of what accreditation actually is. To some extent remote programs have been ignored or only superficially examined by most accreditation reviews. As a result a lot of remote courses can be taught by adjuncts, sometimes a much higher portion than would be acceptable for the normal program. However, one gets the impression that accreditation organizations and associated professional societies are waking up to the need to look more carefully at these programs. There are a number of significant changes that the consumer is going come to understand and want.

> A student taking courses from separate educational institutions, which are still part of the same accredited degree program at the different institutions, should have no problem in knowing the course will count for that degree regardless of the institution it was taken at.

This is the sort of policy a single educational institution can adopt and as a result we expect to see such policies become commonplace. As an expected long term consequence, students will be able to sample institutions without penalty or find their way around the problems of closed out courses at their own institution. Our own studies have shown part time working students in Computer Science at NJIT can take a decade or more to get a degree. With the addition of remote courses they can often cut three or more years off this time frame [Turoff 1998]. The sequence of prerequisites in many technical fields means that the loss of the opportunity to take a course in a given semester has more than a linear impact on the time required to complete the program.

Another and even more desirable change would be the accreditation of faculty on an individual basis that would go with the faculty member if he or she changed institutions. I won't hold my breath for the latter but the former will come ultimately as a result of consumer pressure.

With universities, colleges, commercial companies and various consortiums (around the world) all putting courses on the Web, this area is going to suffer the problem that from a quality standpoint a significant number of offerings are going to be almost fraudulent in terms of the quality of offering. There are already a number of diploma mills on the Web that are milking consumers and which undermine the integrity of higher education in the consumers' eyes. The accreditation agencies, in the long run, are there to serve the consumers, or should be. Unless they wake up to their responsibilities in this area the result could be that higher education will lose further respect and support of the political body. The public role of accreditation agencies can be replaced by further "magazine surveys" and new organizations serving the consumer. Accreditation groups should form a consortium to provide the consumer an international clearing house of detailed accreditation information available through the Web.

There are already US, English, Australian, and other European institutions marketing courses on an international basis. Given the large numbers of students not able to afford to go to another country, we can expect a significant rise in remote international students.

TWO APPROACHES

One way of trying to understand the future is extrapolating current trends to their extreme and developing two contrasting scenarios to represent the future of distance education. This is quite easy to do in this case by merely contrasting choices based upon minimizing costs verses maximizing quality.

Characteristic	Maximum Efficiency	Maximum Effectiveness
Learning methodology	individual study and practice	collaborative learning oriented small groups
Instructors role	creator/presenter of "canned" reusable material (instructor may be virtual)	facilitator of groups exploring knowledge and a consultant on reaching understandings
Class sizes	thousands	ten to one hundred (with appropriate software)
Staff	graders and/or problem consultants.	Little or none, small group interactions
Objective	acquiring skills (e.g. how to do a derivative) and training	acquiring cognitive processes (application domain oriented problem solving), e.g. being able to conceptualize a derivative appropriate to investigating a physical problem
Similar current models	large mass lecture classes, TA problem solving groups	small graduate seminars
Social Outcomes	small number of totally virtual universities buying and reselling courses as needed	able to run courses appealing to only very limited numbers but having world wide student access
Control	largely organizational and market driven	faculty driven
Technology	Email, multimedia WEB documents, CAI software	group communications, collaborative Hypermedia knowledge bases and animation type recordings of thought processes.

As one reflects about the above breakdown it should be obvious that there is nothing wrong with having inexpensive ways to deliver skill training. However, for a good university the amount of skills taught as a part of any course should largely occur in the lower division years. What faculty really should be teaching students is how to do problem solving in their subject domain. To do this successfully requires a high degree of communication between the faculty and students so one can perceive if the learning process is successful and adjust it accordingly. To become an expert or "master" in a given field the student and the class need the intelligent guidance and insight that only an accomplished professional can provide.

SUPPORTING FUNCTIONALITY

There is a lot to be said for the old fashioned blackboard in that it allowed the instructor to illustrate a problem solving thought process by the animation of that process. As yet none of the easy to use word processors allow an instructor to create even the simple animation of the derivation of a formula or concept. One does not learn how to paint by looking at a finished paining; one has to view the creation of the painting.

In our Virtual Classroom™ software we have the simple facility that if the instructor posses a class discussion question, no student can see the answers until they have supplied their answer. This simple control on the group communication processes makes the concept of the discussion question a better educational method when done through the computer rather than face to face [Turoff & Hiltz 1995a]. Probably a majority of faculty today considers that education over the Web will always be a poor second to the physical classroom approach. Such a person asked to teach with the Web will probably carry out a self full filling prophecy. One should be willing to face the challenge of making it better experience. It is our belief that the Virtual Classroom type of technology employed with collaborative learning methodology can be a more effective educational environment than the physical classroom.

One basic limitation on the current generation of commercial group communication system is the inability of the instructor to impose semantic oriented Hypertext discussion structures that reflect the problem domain of the course structures [Turoff et. al. 1997, 1999]. With such an ability the resulting discussion can become largely self organizing and allow us to have classes with 50 to 100 students. Based upon our experience in using this technology in the collaborative learning mode I would estimate that each 10 students who are active in a course will generate between 300 and 500 comments in the class conference in a typical semester. This is a function of the subject matter and the behavior of the instructor as facilitator. This does not include their private small team conferences. Right now more than 50 active students will lead to information overload [Hiltz & Turoff 1985] when using a collaborative learning approach. The current generation of available asynchronous group communication technology is largely restricted to simple comment-reply association structures for representing the discussion. Unless a single person exercises the authority to move comments around and carefully index them with the correct key words, the transcript for complex discussions becomes increasingly disorganized [Turoff, 1990, 1999]. Hierarchical indexing schemes require a highly trained indexer to remain consistent and useful.

It is important that the instructor can easily structure and facilitate the activities and assignments taking place in the conference. We provide a tracking table for each student that shows a student whether or not he or she has completed that assignment. It also allows the instructor to keep track of which students are falling behind. Students who don't keep up begin to fall into a situation where catching up is to daunting and can lead to information overload on an individual basis.

Simple facilities like a grade book (shared spread sheet with special access controls) make a big difference in reducing the amount of email that would otherwise have to flow. Also, the ability of the members of the conference able to see who has read to what point in the discussion means the instructor can tell whether a student is up to date, and the members of a team can tell who is not keeping up and contributing. In a successful class in this environment it seems to be the rule that 10-30% of the communications are generated by the instructor. This means the instructor spends more time communicating than any individual student. Any facilities that minimize the effort to track and monitor what is taking place are a highly productive contribution to the functionality of the system. This is also another reason why a successful course is an effort for the instructor that is leaner in size with the number of students in the course.

The future will revolve about collaborative subject domain oriented multimedia knowledge basis. Students in many related courses will be contributing reflections and new materials and the instructors will facilitate and guide these activities. A single knowledge base based upon non linear semantic associations and relationships of

material may represent a whole set of courses with a degree program. Lectures will gradually become small (5 to 20 minutes) segments of video and voice clips associated with semantically linked hypertext/hypermedia oriented material. The instructor will be responsible for synthesizing and lowering the entropy level of the accumulated material in his or her area of the knowledge base.

The very concept of a class might dramatically change. As one example, consider a business curriculum where the beginning freshman student enters as a low level employee in a simulated virtual company and as a senior they exit as top management.. The faculty act as consultants to various individuals, offices, and divisions of the company. If the company needs to develop a computer based application than the task transfers to a development populated by students in IS and CS courses. Clearly one can extend such a model to a whole set of enterprises that would cover most the disciplines that prepare students for their roles in the society. An effective collaboration technique is letting students try to learn enough to act as instructors to lower level students. Instead of a student or student team just doing a report on some topic, they also have to present it to the rest of the class. As yet there have been little in the way of software to specifically support some of these possibilities or to integrate materials and the learning process across sets of courses. This is a largely unexplored area.

There is a great deal of software still missing for instructors and students alike [Turoff & Hiltz 1995]. Educational institutions should try to insure that they can remain flexible and be able to switch to better systems as they are made available. What is currently on the market is only like the crude beginnings relative to what is possible and what has been demonstrated in the research environment. The key functional issue is whether the system forces all professors into the same framework or allows individual faculty to creatively work from a very general and flexible toolkit. Such a kit would allow the sort of individual course tailoring consistent with differences in subject areas and individual instructor styles. Approaches that try to make all courses look alike and have all instructors follow the same plot are doomed to stifle the creativity that will continue to evolve this area. It will create further resistance by the very academics that are key to its further advancement.

The next evolution of Virtual reality will allow students to tailor genes to produce organisms and watch them grow and interact in a virtual world of organisms, rather then modeling an image of the finished organism. While medical students will be able to investigate electronic cadavers (or simulated live humans), imagine some of the impacts in the training fields where pragmatic knowledge is not found or mastered alone from text books. A group of apprentices learning to be carpenters, plumbers, electricians, masons, etc. can work as a group in a Virtual World to build a house from the basic raw materials and tools found in the real world. Just as medical students can never get enough physical cadavers to experience a wide range of different medical conditions, the craft's apprentice cannot usually experience a similar wide range of building challenges. There is one demonstration system already where individual dance students can put their dance composition into a virtual space to view individual or group compositions among remote dance students. The virtual lab for group efforts is still a challenge that creative faculty need to be encouraged to pursue.

THE LIKELY FUTURE

Perhaps the problem that too many institutions of higher education (and perhaps faculty as well) have is that they have come to think that teaching skills is their objective.

The one irrefutable fact about the technologies of personal computers and educational software is that skill training can be largely automated and that commercial organizations will be able to deliver such canned software at prices universities and colleges cannot compete with.

> Institutions of higher education should become clearing houses for good skill and training material but will have to eliminate courses that are almost totally based upon such material.

There is a small number (probably less than 100) of basic "101" courses that are taught at most institutions of higher education. A major objective for commercial ventures will be to create canned versions of these courses that will allow most students to prove competency, based upon exams. As a result, the ultimate long term success of institutions of higher learning will be based upon market differentiation. In some sense higher education is going to move full circle back to the roots of the middle ages where instructors were the facilitators of seminar groups of students who worked together to master a subject. However, the seminar will be conducted largely through the Web and small will be more like up to 100.

There is little doubt there will be a tremendous shakeout in higher education in the next decade as a result of competition. Colleges and universities need to rethink their objectives and reexamine what is the product they are offering, and to whom. Given the investment consumers make in higher education, they will become a lot more intelligent about their choices.

In the definition of a Virtual Organization put forward by Mowshowitz [1997], the VO becomes a communication switching system able to dynamically allocate a specific request for a service or product to the best provider or satisficer from a long list of alternatives. One has to realize that higher education is ideally suited to operating under the VO model provided one believes in the complete modularization of course materials, the just in time learning concept, and the idea that all faculty teaching a given subject teach essentially the same thing. There are now canned courses for learning languages like C available from commercial companies that are significantly cheaper than a typical college course at most public institutions.

The "amazon.com" of higher education will offer the student a mix of educational modules from packaged self instruction software to remote course alternatives at different institutions. Those whose primary interest is in obtaining a skill level for a job in industry at an inexpensive price will find that very appealing. Given the current atmosphere in corporations, outsourcing the corporate training to such a provider will also be very attractive. What is doubly important about the "amazon" model is the ability of readers to add their review of the product to the original advertisement [Turoff 1985]. This type of consumer informed marketplace is what will speed the process of change. Along with this marketplace could also be something akin to what has happened to the airline industry, where for courses with real instructors you can pay a high premium to get early registration. Later, when it is clear that there are unfilled "seats," the costs drop and bids are accepted. The reputation of the pilot (instructor) would also influence the cost of a seat in the class.

> What ever mechanisms and fee structures evolve the key change will be consumer awareness of the relative quality of course material and/or instructors across alternative institutions or sources.

Students will have a great deal more flexibility to pick and choose by their own criteria. Foreign students will not need to travel to the U.S. to get a U.S. degree. Neither will U.S. students be limited to U.S. based degree programs. Many examples are already underway of students taking courses across international boundaries. Remote management degrees have been available in the US from England for some years. There are a growing number of people working, retired, or homebound, who are just interested in learning for enjoyment and this will be a booming market. Russian literature might be more interesting from a professor in Russia than from a local community college.

FACULTY

Faculty are still the key to the future but it is uncertain whether they will destroy themselves or evolve into something new. The battle of material ownership is a key issue faculty will not compromise on; however, if they refuse to evolve their teaching methods and adapt new learning approaches they will be condemning their institutions and the future role of faculty in the educational process. Too many institutions seem to feel the material is more valuable than the faculty person who created it. For many academic fields the productive life time of the faculty member is much longer than the lifetime of the material they create.

In the sort of educational marketplace that will evolve capable faculty will be the critical element in creating quality programs that become recognized. The technology, if designed and utilized correctly [Turoff & Hiltz 1995] can give the faculty member a great deal of control over materials and power to rapidly evolve the materials. In fact a well run collaborative oriented learning course has the students aiding the professor in keeping up to date in the literature and evolving better materials for the course. However, many faculty still reject the notion of changing the "sage on the stage" educational process they are used to. Even worse, some prefer the correspondence course model and would rather delegate direct two way communications with the students to intermediaries.

Regardless of what is written down, the rewards for faculty are far more tied up with research and external funding and the educational side merely has to be acceptable. Innovation in education and exceptional teaching have little relative impact for young faculty at many institutions. This is clearly a problem with administrations. While they are focusing their attention on competing in research and obtaining sponsored funds, the nature of the educational process is undergoing a fundamental change that is not really understood or anticipated. There are going to be some very rude awakenings in the next decade. Because of the time needed to change peoples' attitudes and bureaucratic processes, some of these awakenings may occur too late.

Competition in education on an international and national basis will become the principle determinant of the success or failure of institutions in the next decade.

The underlying factor of success in the future will be the talent of the instructors and their commitment to excellence in learning. Institutions may well have to reassess the relative balance in faculty rewards between teaching and research.

CONCLUDING REMARKS

Students and faculty both are in for a very interesting decade of change. There was no intention to say that the technology that makes the written word the primary

communication mechanism for learning will satisfy everyone. Our own evaluation efforts show that about 20% of the students that take a course this way still prefer face-to-face classes even when they have been part of a fairly successful class. There will always be population of learners that will prefer face to face discussion groups and will be willing to pay extra for that privilege in terms of travel, time, and effort. However, face to face discussion classes can still use this technology to greatly improve those face to face discussions. Voting processes and other tools can be used to help discover quickly what aspects of topic need more in depth discussion by the class [Turoff & Hiltz 1995b]. The quality of face to face meetings can be greatly improved through the adjunct use of Computer Mediated Communications [Hiltz & Turoff 1993].

The key to the future in my own view is the incorporation of the technology for group communications into regular classes and the movement of all university student services on to the networks. There is no reason why any function the university provides the student cannot be handled via web based communications (well maybe not the gym). Even the most demanding of applications which is synchronous tutoring could be handled with a shared electronic blackboards with integrated digital voice. Internet II is not that far away and the only limit becomes the bandwidth into the learners home. The future is the Virtual University.

Forget remote education, the technology of group communications and collaborative learning methodology can significantly improve regular courses at colleges and universities. When this occurs there no longer has to be any real distinction that has to be made between regular students and distance students. All students should be treated as one in the same by institutions of higher education. The goal for distance education as an institution should be to eliminate itself. To a large extent the individual student should have the choice of the mix of media they wish to use for any individual class. As for faculty, there are a lot of us who believe in this form of instruction and it is our academic right on individual bases to make this choice. Faculty bodies that want to prevent this transition from occurring are as bad as administrations that want to limit faculty control over their classrooms and their education materials -- whether physical or electronic. In the long run the evolving marketplace in higher education will make some of the current debates seem almost comical. Colleges will not get away with academic courses for a thousand students and those faculty and programs that stay with the past will gradually loose their market (beginning with the best and brightest students!).

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